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## A Report of Research on

### THE NAVY GROUP RORSCHACH AS A RESEARCH INSTRUMENT: RELIABILITY AND NORMS

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#### ACKNOWLEDGEMENT

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THE NAVY GROUP RORSCHACH AS A RESEARCH INSTRUMENT:  
RELIABILITY AND NORMS<sup>1,2</sup>

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1.

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2.

A portion of this monograph was reported at the 1952 annual meeting of the American Psychological Association.

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Any consideration of the Rorschach as a research instrument should include a joint consideration of the conceived use of the instrument and the user's conception of the measurements obtained from the instrument. The theory of Rorschach scoring categories and the function of the test in the research program are each integral parts of this consideration. Thus, it becomes important at the outset to specify whether the Rorschach is to be used in describing or making predictions about individuals or about groups.

The present report purports to use the Rorschach in the description of individuals and groups of individuals. The nomothetic approach, often disparaged for Rorschach research methodology, is for the present task altogether appropriate.

It is not the purpose of the present report to imply that a particular group exhibits any particular personality manifestations. The methodology of the Rorschach most useful in the recognition of an individual's personality structure, as revealed by the test, is dependent upon the inter-relations of the Rorschach indicators within a given protocol. However, this does not mean that normative data such as here presented are unrelated to the interpretation of an individual Rorschach protocol. On the contrary, it is strongly urged that such normative information provides, either implicitly or explicitly, the very framework necessary in the evaluation of the individual protocol. Furthermore, this framework is particularly useful and important when one is concerned with the Rorschach record of an individual from a special subpopulation or with a record obtained using some modification in the administration or scoring procedures.

In the present report, the test administration and scoring procedures are first described. Following this is a description of the subpopulations together with their Rorschach norms. The important problem of reliability is then considered and conclusions regarding administration procedures are presented.

Testing procedures. Projected images of standard Rorschach plates were presented on a 5' x 7' beaded screen to groups of subjects (Ss) assembled in a room with a seating arrangement provided to minimize the distortion of two factors: perspective foreshortening, and, the visual angle subtended by the

projected image. The angle subtended when viewed on the screen was approximately the same as that subtended in an individual Borschach test when the plate is held approximately 22 inches from the eye of the viewer.

The physical arrangements for testing shown in Figure 1 provide for seating of a maximum of 30 men.

When the Ss were seated, the following instructions were read to them:

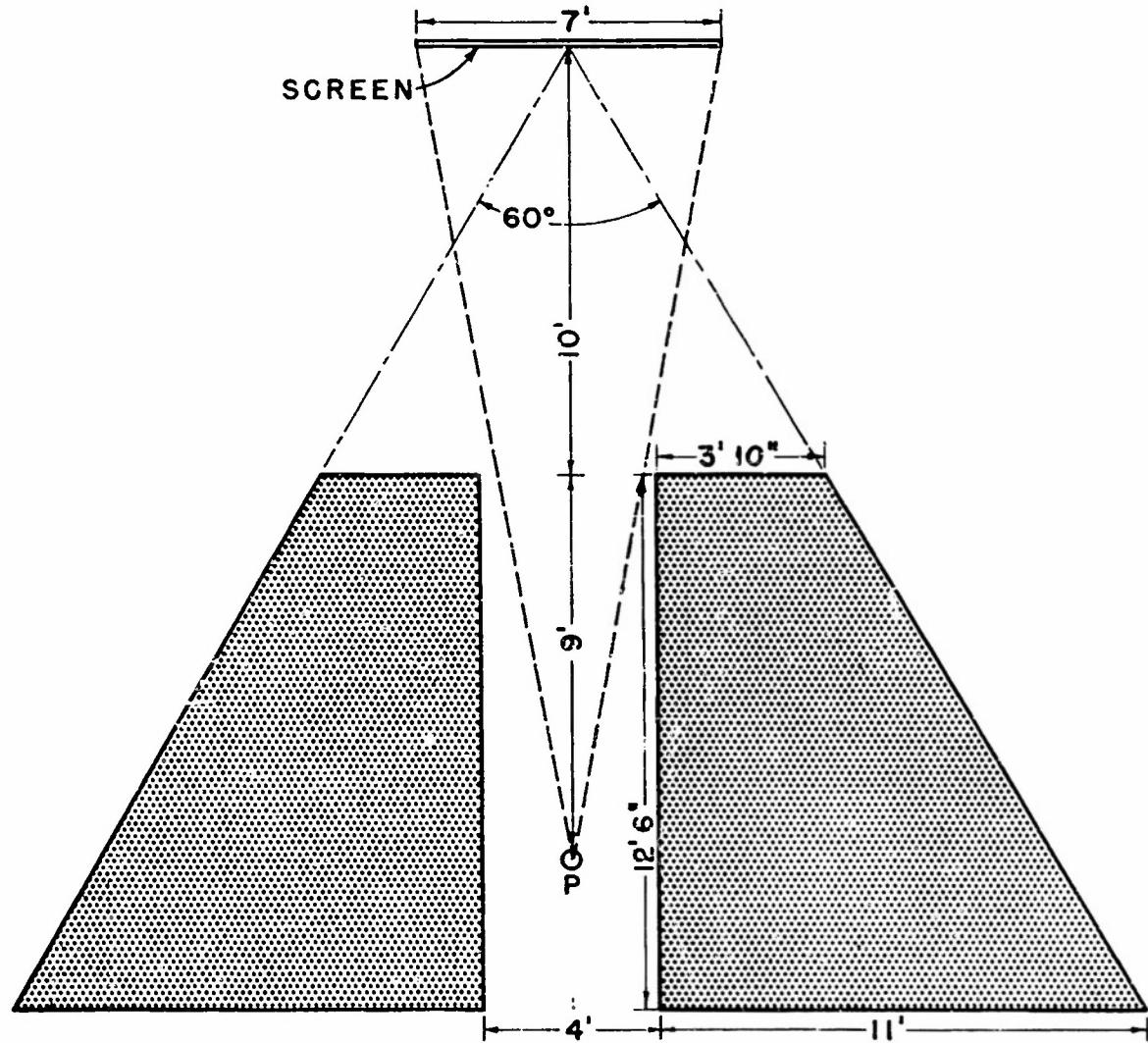
"In a few minutes the room will be darkened and you will be shown ten ink blots on the screen, one at a time. You will write down the things suggested to you by the ink blots. There will be enough light to do this and you don't need to worry about either spelling or handwriting. The responses will be written in the booklet which you have. You will start writing on page three in the second column. Place a Roman numeral I for card I, in the center of that page on the top line. At the completion of the showing of each card, skip down a few spaces and write down the number of the next card. If you fill page three, turn to page five, then to page seven, and so on, using only one side of each page. If you fill the booklet, raise your hand and another one will be passed out to you.

This test is called the Borschach Test. Everyone goes about responding to it in his own way, so there are very few rules we can give you. Each ink blot will be thrown on the screen for three minutes. You are to write down what you can make out on the card, what it looks like to you, or what resemblances you may find in it. There are no right or wrong answers, because no two people see the same things in the blot, nor are they necessarily reminded of the same objects. For each new idea you get from each blot, start writing what you see on a new line, numbering your lines on the left hand side of the column.

After we begin, no questions will be answered from the floor, but if you have any difficulty, please raise your hand and one of us will come to your chair. Absolute quiet is necessary throughout the test. Are there any questions?"

Routine questions were answered; then the room was darkened and each plate was projected on a glass headed screen under constant, controlled conditions for three minutes in the upright position. An opaque projector, #D-10862 made by C. Deseler Company, was used.

FLOOR LAYOUT  
FOR  
GROUP RORSCHACH



Each S wrote his Rs to each plate in a special booklet provided for this purpose. This was done during the time the card was being projected, with additional time allowed after each projection for completing the Rs to the card.

Controlled illumination in the room was maintained just high enough for comfortable recording of the Rs by the Ss. Soft pencils were used to make it easier for the Ss to see what they had written in the dimly lit room. The illumination incident upon the screen, with projector on, was one candle power as measured on a standard General Electric Selenium Photometer, model DW 48, with hood open.

After the ten plates had been presented, the Ss were asked if any of them had previously taken the test, and any instances of prior exposure to the ink blots were noted on the cover of the response booklet for the use of the psychologist during the inquiry period. Following the completion of the Rs to the test plates, the booklets were collected. An individual inquiry was then conducted with each man by a skilled Rorschach administrator in the manner characteristic of the inquiry interview as used under conditions of individual administration of the Rorschach test. The test was scored by the psychologist who conducted the interview.

Table I summarizes the experience background of the psychologists who scored the protocols. It may be noted that the personnel who conducted the individual inquiries and scored the test had an average of 11 years experience as clinical psychologists, and an average of 7.4 years experience in Rorschach administration.

Table 1

EXPERIENCE BACKGROUND OF RORSCHACH ADMINISTRATORS

Psychologist	Years of Paid Experience as Clinical Psychologist	Years Experience in Rorschach Administration	Scoring Procedure Preferred
1	10	6	Krugman
2	16	9	Klopfer
3	9	7	Klopfer
4	6	3	Beck
5	14	12	Klopfer
6	7	4	Beck
7	16	11	Beck
8	3	7	Beck
Mean	10.75	7.38	

The subpopulations and their norms. One thousand men from four different assessment programs comprised the Marine subpopulation. Three hundred seventy-four Navy Officers tested in three different assessment periods while attending a Navy graduate school comprised the Navy subpopulation. The billets to which the men in these two groups all had elected were distinctly different. Furthermore, biographical information obtained from the Ss in the two groups reveals rather marked differences. The Min. candidate in the Marine group was 22½ years of age, spent most of his life in a city with a population between 25,000 and 100,000, had a protestant religious background, and had completed two years of college. All of the Marine Ss had at least six months prior military service and 75 per cent had over 28 months prior service. All of the Marine Ss were candidates for officer commissions and 70 per cent were noncommissioned officers.

The Min. candidate in the Navy group was 24 years of age, spent most of his life in a city with a population of over 100,000, had a protestant religious background, and had completed four years of college. The Navy group showed a bi-modal distribution for previous military service; one mode was at 3 months, one at 99 months or over. The range of rank held in the Navy group was from Ensign to Commander, with the Min. falling at Lt.(jg). Tables 2 and 3 present the Marine and Navy frequency norms for the major scoring categories used and the percentile scorings corresponding to those norms.

A comparison of the distributions for the two groups reveals a different "normal" pattern of test score distribution. While the N of the Navy subpopulation is smaller than that in the Marine group it is still sufficiently large to justify the assumption of stability of the norm data. The differences between the distributions for the two groups cannot be attributed to

TABLE 2

GROUP ADMINISTERED ROESCHACH NORMS FOR SCORING CATEGORIES  
HAVING RELIABILITY COEFFICIENTS OF  
.85 OR HIGHER

(Marine N = 1000; Navy N = 374)

Percentile	ROESCHACH SCORING CATEGORY											
	E		W		d		V%		Pc		Marine	Navy
	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy		
2	11	10	1	3	0	0	6	2	0	0	0	0
10	15	15	4	6	0	0	13	18	0	0	0	0
15	16	17	4	7	0	0	16	22	0	0	0	0
20	18	19	5	7	0	0	13	27	0	0	0	0
25	19	21	5	9	0	0	21	30	0	0	0	0
30	21	22	6	9	0	0	23	33	0	0	0	0
40	23	25	7	10	0	0	29	41	1	0	1	0
50	25	28	3	11	1	0	35	46	1	1	1	1
60	27	32	10	13	1	1	42	52	1	1	1	1
70	30	35	11	16	1	1	47	57	2	1	1	1
75	32	38	12	17	2	2	50	60	2	2	2	2
80	34	41	13	18	3	2	56	63	2	2	2	2
85	37	45	14	20	4	2	61	67	3	2	3	2
90	42	52	15	23	5	4	66	70	3	3	3	3
95	50	58	18	26	7	7	75	78	4	3	4	3
98	59	64	21	32	9	10	86	90	6	5	6	5
Reliability Coefficient	.93	.94	.91	.94								
Score-retest score	.94	.90	.97	.91								
Reliability												

TABLE 2 CONTINUED

GROUP ADMINISTERED RORSCHACH NORMS FOR SCORING CATEGORIES  
HAVING RELIABILITY COEFFICIENTS OF  
.85 OR HIGHER

(Marine N = 1000; Navy N = 374)

Percentile	RORSCHACH SCORING CATEGORY											
	M		FM		A		AG		G		Navy	
Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	
2	0	0	0	0	0	1	1	3	4	16	10	
10	1	1	1	1	1	3	4	25	25			
15	1	2	1	1	1	4	5	28	29			
20	2	2	1	1	1	4	6	30	31			
25	2	2	1	2	2	5	6	32	32			
30	2	3	2	2	2	6	7	33	34			
40	3	3	2	3	3	6	8	37	37			
50	3	4	3	3	3	7	9	40	40			
60	4	4	3	4	4	9	10	42	42			
70	4	5	4	5	5	9	11	45	46			
75	5	6	4	5	5	10	12	48	49			
80	5	6	5	6	6	10	13	50	50			
85	6	7	5	7	7	11	14	52	52			
90	6	8	6	7	7	12	15	55	57			
95	8	9	6	9	9	14	17	61	61			
98	10	11	8	11	11	17	19	67	67			
Reliability Coefficient	.86		.85		.90			.99				
Score-rescore Reliability	.64		.80		.86			.88				

TABLE 2 CONTINUED

GROUP ADMINISTERED RORSCHACH NORMS FOR SCORING CATEGORIES  
HAVING RELIABILITY COEFFICIENTS OF  
.35 OR HIGHER.

(Marine N = 1000; Navy N = 374)

Percentile	RORSCHACH SCORING CATEGORY											
	Ad		A obj.		Id		Marine		Navy		At	
	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy
2	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	1	1	1	1	0	0	0	0	0	0
40	1	1	1	1	1	1	1	1	1	1	0	0
50	1	1	1	1	1	1	1	1	1	1	1	1
60	1	2	1	1	1	2	1	1	1	1	1	1
70	2	2	1	1	1	2	2	2	2	2	2	2
75	2	3	2	2	2	3	2	2	2	2	2	2
80	3	3	2	2	2	3	3	3	3	3	3	3
85	3	4	2	2	2	4	3	3	3	3	3	3
90	4	4	2	2	2	5	5	5	5	5	5	5
95	5	5	2	3	3	7	6	6	4	4	4	4
98	6	7	3	3	3	9	6	6	5	5	5	5
Reliability Coefficient	.85	C	.87	C	.91	C	.95	C				
Score-rescore Reliability	.82		.84		.94		.97		.95			

TABLE 3

**GROUP ADMINISTERED RORSCHACH NORMS FOR SCORING CATEGORIES  
HAVING RELIABILITY COEFFICIENTS OF  
LESS THAN .85**

(Name N = 1000; Navy N = 374)

Percentile	ROSENTHAL SCORING CATEGORY									
	D		dd		d%		dd%		S%	
	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy
2	1	0	0	0	12	0	0	0	0	0
10	5	5	0	0	30	25	0	0	0	0
15	6	6	0	0	35	29	0	0	0	0
20	7	7	0	0	40	33	0	0	0	0
25	8	8	0	0	43	36	0	0	0	0
30	9	9	0	0	47	39	0	0	0	0
40	11	11	0	0	53	43	0	0	0	0
50	13	13	0	0	58	49	0	0	0	0
60	15	15	0	0	62	53	2	0	0	0
70	17	18	1	0	67	57	3	4	3	2
75	19	20	1	0	70	60	4	5	3	3
80	20	22	1	1	72	63	5	7	4	3
85	22	24	2	1	75	67	7	3	5	5
90	25	28	3	2	77	73	9	10	7	6
95	29	33	4	4	82	76	13	13	10	9
98	37	38	8	7	87	83	20	23	16	12
Reliability Coefficient	.83 r		.45 C		.81 r		-.15 C		.32 C	
Score-re-score Reliability	.83		.04		.73		.49		.77	

TABLE 3 CONTINUED

GROUP ADMINISTERED RORSCHACH NORMS FOR SCORING CATEGORIES  
HAVING RELIABILITY COEFFICIENTS OF  
LESS THAN .85

(Marine N = 1000; Navy N = 374)

Percentile	RORSCHACH SCORING CATEGORY													
	F%		F+%		Marine		Navy*		K, K'		EP		PK	
	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	K	K'	Marine	Navy	Marine	Navy
2	12	14	67	50	0	0	0	0	0	0	0	0	0	0
10	23	26	81	65	0	0	0	0	0	0	0	0	0	0
15	26	30	85	69	0	0	0	0	0	0	0	0	0	0
20	29	33	87	74	0	0	0	0	0	0	0	0	0	0
25	32	35	89	77	0	0	0	0	0	0	0	0	0	0
30	34	37	90	80	0	0	0	0	0	0	0	0	0	0
40	39	40	93	86	0	0	0	0	0	0	0	0	0	0
50	43	44	95	90	0	0	0	0	0	0	0	0	0	0
60	47	48	99	93	0	0	0	0	0	0	0	1	1	1
70	52	52	100	100	1	0	0	0	0	0	0	1	1	1
75	55	54	100	100	1	1	0	0	0	0	0	1	1	2
80	58	57	100	100	1	1	0	0	0	0	0	2	2	2
85	61	61	100	100	1	1	0	0	0	0	0	1	1	1
90	65	66	100	100	2	2	0	0	0	0	0	2	3	3
95	70	70	100	100	3	2	1	1	1	1	1	3	4	4
98	77	77	100	100	5	3	1	1	1	1	1	4	4	4
Reliability Coefficient	.78	.13			.07							.65		
Score-rescore Reliability	.82	.26	C	C	C	C	C	C	C	C	C	.58		

\* F+% scored after Beck, for Navy Group.

TABLE 3 CONTINUED

GROUP ADMINISTERED ROESCHACH NORMS FOR SCORING CATEGORIES  
HAVING RELIABILITY COEFFICIENTS OF  
LESS THAN .85

(Marine N = 1000; Navy N = 374)

Percentile	ROESCHACH SCORING CATEGORY											
	Fm, m		c + c'		C		CF		FC		Marine Navy	
	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy
2	0	0	0	0	0	0	0	0	0	0	0	0
10	3	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	1	0	0	0
25	0	0	0	0	0	0	0	0	1	0	0	0
30	0	0	0	0	0	0	0	0	1	0	1	1
40	0	0	0	0	0	0	0	1	1	1	1	1
50	0	0	0	0	0	0	0	1	2	1	2	1
60	1	0	0	0	0	0	0	1	2	1	2	1
70	1	1	1	1	0	0	2	3	2	2	2	2
75	1	1	1	1	0	0	2	4	2	2	2	2
80	1	1	2	1	1	1	3	4	3	3	3	3
85	2	1	2	1	1	1	3	5	2	2	3	3
90	2	2	2	2	1	1	3	5	3	4	3	4
95	2	2	3	2	2	2	4	7	4	5	4	5
98	3	3	5	3	3	3	5	9	5	6	5	6
Reliability Coefficient	.75		.10		.70		.57		.40			
Score-rescore Reliability	.57		.02		.65		.52		.04			

TABLE 3 CONTINUED

**GROUP ADMINISTERED BORSCHACH NORMS FOR SCORING CATEGORIES  
HAVING RELIABILITY COEFFICIENTS OF  
LESS THAN .35**

(Marine N = 1000; Navy N = 374)

Percentile	BORSCHACH SCORING CATEGORY											
	EC		M: EC		m:c		H		TH		Marine Navy	
	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy
2	0	0	0	.1	0	0	0	0	0	0	0	0
10	.5	1.0	0	.2	.2	.3	.4	.5	1	1	1	1
15	.5	1.0	.1	.3	.3	.4	.6	.7	1	1	1	1
20	1.0	1.5	.5	.3	.4	.5	.9	1.0	2	2	2	2
25	1.0	2.0	.3	.4	.5	.6	1.0	1.0	2	2	2	2
30	1.5	2.0	.4	.5	.6	.6	1.2	1.5	2	2	2	2
40	1.5	2.5	.5	.6	.6	.6	1.2	1.5	3	3	3	3
50	2.0	3.5	.7	.8	.8	.8	1.7	2.0	3	3	3	3
60	2.5	4.0	.9	1.0	1.0	1.0	2.0	2.0	3	3	3	3
70	3.0	4.5	1.2	1.3	1.2	1.3	2.3	2.3	4	4	4	4
75	3.5	5.0	1.3	1.3	1.7	1.7	3.0	3.0	4	4	4	4
80	4.0	5.5	1.7	1.9	1.7	1.9	3.7	3.7	5	5	5	5
85	4.5	6.0	2.4	2.3	2.4	2.3	4.5	4.5	6	6	6	6
90	5.5	7.5	3.0	3.0	3.0	3.0	5.0	5.0	7	7	7	7
95	7.0	9.0	4.0	4.0	4.0	4.0	6.0	6.0	8	8	8	8
98	8.5	10.5	6.0	5.8	6.0	5.8	9.0	11.0	10	10	10	10
Reliability Coefficient	.65	r	.52	r	.52	r	.52	r	.61	.61	.61	.61
Score-rescore Reliability	.71		.46		.57		.57		.50	.50	.50	.50

TABLE 3 CONTINUED  
 GROUP ADMINISTERED EGERSCHACH WORKS FOR SCORING CATEGORIES  
 HAVING RELIABILITY COEFFICIENTS OF  
 LESS THAN .85

(Marine N = 1000; Navy N = 374)

Percentile	EGERSCHACH SCORING CATEGORY									
	Age	Cont: No.	% R's							
			Ad-Hd	Normal R	Clin. R	P%	G-X	Marine Navy	Marine Navy	VIII-X
	Marine Navy		Marine Navy	Marine Navy	Marine Navy			Marine Navy	Marine Navy	Navy
2	0	1.0	0	0	0	3	2	0	0	1.0
10	1.2	1.5	1	0	0	9	8	0	0	.93
15	1.4	2.0	1	0	0	10	10	0	0	.93
20	1.7	2.3	2	0	0	12	12	0	0	.93
25	1.9	2.6	3	0	0	13	13	0	0	.93
30	2.2	3.0	2	0	0	14	13	0	0	.93
40	2.3	4.0	3	0	0	16	15	0	0	.93
50	3.7	5.5	4	1	1	18	17	3	0	.92
60	5.0	7.0	4	1	20	20	5	3	3	.92
70	6.5	8.0	5	1	22	25	8	4	3	.92
75	7.8	9.0	5	2	24	26	10	4	3	.92
80	9.0	10.0	5	2	26	28	11	5	3	.92
85	10.5	12.0	7	2	28	30	13	3	4	.92
90	12.0	15.0	9	3	30	33	17	11	4	.92
95	15.0	18.0	11	4	35	38	20	23	4	.92
98	17.0	20.0	14	5	41	50	26	42	50	.93
Reliability Coefficient	.71	.63								
Score-rescore Reliability	.77	.51								
			R	C	R	C	R	C	R	
* Data not available on Navy sample for Cont: No., Norm. R or Cont: No. Clin. R.										

chance fluctuation. This result indicates that interpretations of the "normal superior adult Rorschach pattern" must be made within the context of the norms for the subpopulation to which the S belongs, if the full significance of the Rorschach scoring categories is to be obtained from the interpretation of the protocol.

A comparison of the distribution for the various categories obtained through the group administration with those obtained from the traditional individual administration of the Rorschach cards suggests that the results obtained by the group procedure do not differ greatly from those usually reported for similar populations under conditions of individual administration. Beck, et al (2) report for their Spiegel sample a  $M$  total Rs of 32.65 with a SD of 17.68. The  $M$  total Rs for our Marine sample was 27.52 and for our Navy sample was 31.26. When one considers that there was some positive skewness in the distribution of our R scores, it is suggested that the total number of Rs obtained are essentially the same for the two types of administrations. The chief variation observed between our norms and Beck's norms was in the location Rs. In both our samples there were a greater number and percentage of W Rs. The greater frequency of the W responses were made, of course, at the expense of the other determinant responses i. e., D, Dd, and dd Rs. A second category in which a deviation was obtained was that of the F%. In the Marine group administration, the  $M$  of the distribution of F%'s was 45.05. In the Spiegel sample, the  $M$  of the F%'s was 70. One other point should be noted concerning the scoring categories presented. The F+% calculated for the Marine group was strange to most of the clinicians and, as will be shown in the results on reliability, much confusion resulted from this scoring of F+% with a resulting lowering

of reliability. The norms obtained for this scoring then are not very meaningful.

If one assumes that the R pattern obtained by exposure to the Rorschach cards involves a constant, systematic source of error variance in the use of the group and individual type administrations, then one can generalize the findings concerning the necessity of developing norms for distinctive subpopulations to all types of Rorschach testing i. e., the necessity for developing norms for subpopulations in individual Rorschach testing, is just as great as the demonstrated necessity of such norms for use with the group presentation of the ink blot cards.

One other hypothesis is suggested in the normative data presented in Tables 2 and 3. The M number of Rs for the 1,000 Marine Officer candidates was 27.52. This is higher than those reported by Guilford for his Air Force population. Guilford (8) reported a M of 20 Rs under individual administration. The total number of Rs in our study are comparable to Lord's (16) result with college students under conditions of "positive individual administration." The Mn. number is also higher than that reported by Sells (20) for the SAM group ink blot test which he developed and standardized on U. S. Air Force cadets and officers. In view of Lord's and the Air Force's results showing that the protocols obtained under conditions of individual administration are influenced significantly by the administrators, plus the results reported herein that show that at least an average or above average number of Rs are obtained with the use of the Navy Group Method, the following hypothesis is suggested: For research purposes, the Navy group technique results in a more reliable and possibly a more valid protocol than can be obtained under conditions of individual administration. This

hypothesis that a more valid protocol results under group administration is suggested by the fact that the protocols thus obtained are less influenced or disturbed by interaction between administrator and examinee.<sup>3</sup>

**Reliability of Navy Group Method.** Investigations of the reliability of the Rorschach testing technique may conveniently be classified under one of three headings depending on whether the study is concerned with the reproducibility of: (1) the subject's responses to the cards; (2) the scoring made of the response protocol; (3) the interpretations made from the scored protocols. Unfortunately, the interpretations to be made of some studies are often equivocal because of the fact that several variables have been concomitantly operating. Systematic consideration of the number of independent variables which could be manipulated in Rorschach-type ink blot reliability studies reveals that there are at least thirteen such variables. These variables, and citation to reports where they have been studied, are as follows:

1. Physical character of sets of cards presented; (10, 21)
2. Individual and group administration; (6)
3. Changed environmental conditions for card presentation; (8, 13, 16, 23)
4. Sequence of card presentation; (17)
5. Homogeneity--heterogeneity of status positions of Ss; (1, 5)
6. Set of Ss for test task; (6, 13)
7. Constancy--variability in Ss psychodynamic structure; (12, 16, 21, 23)
8. Administrator differences; (8, 16)
9. Method for assigning scoring symbol to R; (3, 10, 11, 14)
10. Scorer skill in assigning symbol to R; (18)
11. Interpretation of scores; (3, 14)

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3.

A report is in preparation of a study designed to test this hypothesis. The results of that study offer positive support to the hypothesis.

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12. Presence or absence of R inquiry; (S, 7)

13. Frequency of card presentation; (16)

This monograph reports on Rorschach scoring reliability as influenced by: (a) different individual inquiries concerning the Rs made in the same basic protocol obtained under conditions of group administration; and (b) the reliability of scorings of the same protocol without benefit of inquiry information. All of the other eleven possible variables were nonoperative in this study, being controlled by randomization, confounding, or by holding them constant.

The Reliability Procedure. One thousand Marine Officer candidates were tested in four different assessment periods using the above outlined Navy Group procedure. During one assessment period, 430 men were given the test as described. Of this group, 100 were selected at random and called back two days later and given a second inquiry concerning the Rs they had made in the original protocol. These men were assigned at random to the clinical psychologists with the restriction that no candidate saw the same psychologist twice. The written protocols, without the first inquiry results available, were given the different psychologists the second time and each scored them individually after conducting a second inquiry. The data from this 100 re-scoring were used for the "effect of different individual inquiries" portion of the reliability study. One year later 56 of the written protocols were rescored by some of the same psychologists who did the original scoring. These latter scorings were done without the use of any inquiry information. These data constituted the "score-rescore" portion of the reliability study.

The Reliability Results. Tables 2 and 3 present the results of the "scoring with inquiry" reliability study (in Tables these are labeled

"reliability coefficient"), and the "score-rescore" reliability study. These results are presented in terms of reliability coefficients for the various categories. Two different measures of relationship were employed. When the assumptions of "normal distribution" and linearity of regression were satisfied, product-moment correlations were calculated. Where either of these assumptions was not tenable, mean square contingency correlations were calculated. For the scoring-with-inquiry results, thirteen of the categories had reliability coefficients of .85 or better. Thirteen other categories had correlations between .63 and .85, the remaining one-third had correlations ranging from .07 to .56. The reliability for the scoring-with-inquiry study stood up fairly well for the major scoring categories that are important for individual test interpretation. Seven of those categories had coefficients of .90 or better; five of them fell within the range of from .80 to .89; three fell within the range of from .70 to .79. Only two of them were low--the coefficients for FC and CF, indicating some confusion on consistent scoring of these categories; i. e., difficulty in determining whether color or form was the determining factor. It should also be noted that four of the reliability coefficients do not differ significantly from zero. Those were F+, c + c', K, K and dd per cent. Thus, the norms for those scoring categories are not meaningful and should be disregarded for purposes of interpretation.

Tables 2 and 3 also present the reliability coefficients obtained by correlating the original scorings of the test and the rescorings done one year later. When the score-rescore coefficients were compared with the rescore-plus-inquiry coefficient, it was found that 24 of the score-rescore coefficients were lowered, 13 of them were raised, and 2 remained the same. It should be noted explicitly that while the norms for the group administration of the Rorschach plates are possibly different from the norms obtained under

conditions of individual administration, those differences do not influence the interpretations made of the reliability portions of this study. That is, the conditions and techniques used for the score-rescore and the individual inquiry plus rescorer procedure are identical with those used under conditions of individual administration. Therefore, the results of the reliability portions of this study can be generalized to individual scoring procedures in addition to the group scoring procedures.

A question may be raised concerning systematic skill differences which might exist among the clinicians who conducted the inquiries and scored the protocols. To examine the extent of these differences, a correlational analysis was made for one Rorschach category, EC.

A total of 21 different pairs of psychologists may be formed from the seven psychologists who participated in the inquiry study. Due to the randomization procedure, only 14 different combinations of psychologists met the criteria of having each member of the pair having seen at least four candidates, and with the further restriction that half of the individuals were seen first by one member of the pair of psychologists and the remaining half were seen first by the other member of the pair. When these criteria were applied, 56 cases were isolated from the original 100. The "scoring with inquiry" correlation for those 56 cases originally was .73, which was increased to .77 when the variation attributable to the differences among pairs of psychologists was eliminated by computing squared deviations from the individual regression for each of the different combinations, and pooling the sum of squares after establishing that the regressions could reasonably be assumed to come from an homogeneous population. Table 4 presents the results of those calculations and demonstrates that the obtained mean square

TABLE 4

ANALYSIS OF ERRORS OF ESTIMATE FROM AVERAGE  
REGRESSIONS WITHIN GROUPS

Source of Variation	<u>df</u>	Errors of Estimate	
		Mean Square	P
Deviations from average regression within groups	41	132.50	
Deviations from individual group regressions	23	167.66	
Differences among group regressions	13	214.45	1.23

for differences among regressions is what would be expected by sampling from a homogeneous population. Therefore, the average regression is the best available estimate of the population regression and the average of the correlation coefficients, computed from the sum of squares and products associated with this average regression, is free from the variations attributable to the differences in the combinations of psychologists.

The hypothesis is advanced that the inquiry plus scoring reliability coefficients for all scoring categories would be raised by the same order of proportion as observed with the EC score--an increase of one-sixth of the remaining area for improvement--if the variance attributable to differences among particular pairs of scorers were eliminated.

#### SUMMARY AND CONCLUSIONS

A modification of the Rorschach test for use in group administration was described. This procedure permits the use of free association responses.

Scoring reliability was evaluated from two approaches. One measure of reliability was based on two independent scorings of the same basic protocol after the scorers had conducted independent individual inquiries; the other was based on two independent scorings of the original responses made to the cards without benefit of information obtained through the inquiry. The comparison of the reliability of the scoring plus inquiry with mere rescoring indicated that the inquiry information resulted in correlations that were significantly higher than those obtained with the score-rescore data. The major scoring categories showed a reasonably satisfactory set of reliability coefficients.

Data were presented to indicate that variance in scorer skill lowers the observed correlations. Data were also presented which justify the conclusion that specific norms should be developed for different subpopulations of the "normal superior adult male" population.

An evaluation of the overall scoring results obtained in this study with the results obtained by Guilford (8) and Lord (16) led to the development of an hypothesis that the group administration method as described herein, when used for research purposes, is superior to the individual administration method insofar as basic reliability and validity is concerned.

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